

What is claimed is:

1. A system for cooling a combustion chamber of an engine comprising:

a plurality of coolant tubes or passages surrounding said combustion chamber;

a torroidal coolant-collection manifold for receiving coolant from said coolant tubes or passages and for discharging said coolant through a discharge port; and

means within the torroidal manifold for reducing pressure loss and improving pressure uniformity associated with said torroidal coolant-collection manifold.

2. The system of claim 1, wherein said coolant tubes or passages form a wall of said combustion chamber.

3. The system of claim 1, wherein said pressure loss reducing and pressure uniformity improving means comprises a plurality of turning vanes positioned within said manifold.

4. The system of claim 3, wherein each said turning vane is positioned adjacent an end of an opening in one of said coolant tubes or passages so that a flow of coolant exiting said one coolant tube or passage is turned from a radial or axial direction to a tangential direction by said turning vanes.

5. The system of claim 3, wherein at least some of said turning vanes may have a longer extent than others of said turning vanes.

6. The system of claim 3, wherein each of said turning vanes has an arcuately shaped portion.

7. The system of claim 3, wherein said manifold has a discharge port and said turning vanes are incorporated into an inner wall of said manifold or situated within said manifold so as not to impede bulk flow of said coolant toward said discharge port.

8. The system of claim 1, wherein said combustion chamber forms part of a rocket engine.